

**OPTICAL BEAM SCANNING SYSTEM FOR COMPACT IMAGE DISPLAY  
OR IMAGE ACQUISITION**

**Abstract of the Disclosure**

5 An optical fiber having a reduced cross-sectional region adjacent to its distal end,  
which is fused to an optical component, is vibrated, rotating the optical component to  
scan a region. The optical component has a back focal point that is substantially  
coincident with an effective light source of the optical fiber, so that the light emanating  
from the optical component is either substantially collimated or convergent. The optical  
component is either a ball lens, a drum lens, a graded index lens, or a diffractive optical  
10 element. A vibratory node is also made substantially coincident with the back focal point  
of the optical component, producing a compact scanner with extensive field of view. The  
optical fiber is preferably reduced in cross-sectional area after the optical component is  
fused to the optical fiber, by immersion in a three-layer etch apparatus having an  
etch-stop layer, an etch layer, and a solvent layer.